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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,348	09/24/2003	Kunihiko Kodama	Q77664	3904

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EXAMINER	
LEE, SIN J	
ART UNIT	**PAPER NUMBER**
1752	

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,348	KODAMA, KUNIHIKO	
	Examiner	Art Unit	
	Sin J. Lee	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,7,8 and 10-15* is/are rejected.

7)☒ Claim(s) *3,6,9 and 16-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

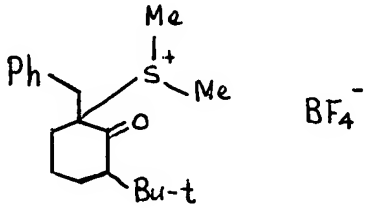
1. Due to new grounds of rejections, the following rejections are made non-final.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Sanz et al (Chemical Abstract (120:76709) – English abstract for "Study of Anh's Theory for α-thiolated Cyclohexanones", Anales de Quimica, vol.88 (5-6), pg.596-600).

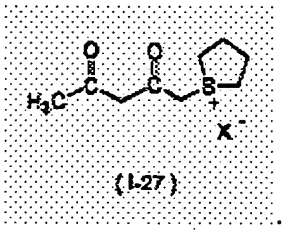
Sanz teaches the following compound (see the second page of the English abstract).



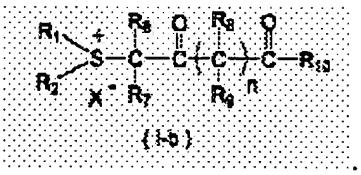
, and this compound teaches present photoacid generating compound of claim 1: present Y_1 and Y_2 would be alkyl groups, present R_1 would be a substituted alkyl group (substituted with t-butyl group), present Y would be an alkyl group substituted with a phenyl group, present R_2 would be an alkyl group in which R_1 and R_2 are bonded to each other to form a ring, and present X^- would be BF_4^-. Therefore, Sanz, which teaches the present photoacid generating compound of formula (I), teaches present inventions of claims 1, 12, and 14.

4. Claims 1, 2, 4, 5, 10, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoso et al (JP 2002-255930 and DERWENT English abstract for the Japanese document).

Aoso teaches following acid-generating compound (see [0041] of Japanese document and English abstract);



This specific compound fits the generic formula (I-b) shown below (see claim 1 of Japanese document);



According to English abstract, R_6 and R_7 can be H atom, *alkyl*, haloalkyl, cycloalkyl, alkenyl, aryl, aralkyl, acyl, alkoxycarbonyl or –S-R_5. Since the prior art teaches the equivalence of H atoms and alkyl group (and since there are only a few choices for R_6 and R_7), one of ordinary skill in the art would immediately envisage replacing those two H atoms in the R_6 and R_7 positions in the compound (I-27) with two alkyl groups, and such compound teaches present compound of the formula (I) (present Y_1 and Y_2 are bonded to each other to form a ring, present R_2 and Y would be alkyl groups, and present R_1 would a methyl group (an alkyl group) substituted with –C(=O)-CH_3 group). Aoso uses this compound in a positive resist composition together with a *resin with an alicyclic group and an acid-decomposing group that is decomposed by the action of acid* in order to *obtain a resist pattern* (by irradiating to ArF excimer laser) having excellent

profiles (see English abstract). Thus, the prior art teaches present inventions of claims 1, 2, 4, 12, 14, and 15.

With respect to present claim 5, the Japanese document lists examples of its resin in [0111]-[0127], and all of those resins include a repeating unit that contains a lactone structure. Therefore, the prior art teaches present invention of claim 5.

With respect to present claim 13, it is shown from Table 2 (see Japanese document [0190]) that Aoso's composition can further comprise another photoacid generator such as PAG4-3 or PAG4-6 (see their structures in [0145]) in addition to his inventive acid-generating compound. Both of PAG4-3 or PAG4-6 are arylsulfonium compounds. Therefore, the prior art teaches present invention of claim 13.

[0169]-[0171] of Japanese document teaches the use of a nitrogen containing compound in Aoso's composition. Therefore, the prior art teaches present invention of claim 10.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoso et al (JP 2002-255930 and DERWENT English abstract for the Japanese document) in view of Watanabe et al (US 6,613,844 B2).

Although Aoso does not disclose the use of present dissolution inhibiting compound, it is well known in the art, as evidenced by Watanabe, col.51, lines 66-67, col.52, lines 1-8, that one can add a dissolution regulator having an average molecular

weight in the range of 100-1,000 to a positive resist composition (which already has an acid-decomposable resin) in order to further enhance contrast of the resist pattern. Therefore, it would have been obvious to one of ordinary skill in the art to add a dissolution regulator having an average molecular weight in the range of 100-1,000 to Aoso's resist composition so as to further enhance contrast in his resist pattern. Thus, Aoso in view of Watanabe would render obvious present invention of claim 7.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoso et al (JP 2002-255930 and DERWENT English abstract for the Japanese document) in view of Nitta et al (US 6,605,417 B2).

Although Aoso teaches a two component-resist containing an acid-generating compound and an acid-decomposable resin, it is well known in the art, as evidenced by Nitta et al, col.3, lines 24-44, that the two component resist system can be replaced with three component resist system, which contains an acid-generating compound, an alkali-soluble resin, and a low molecular weight dissolution inhibiting compound, in a positive type resist composition. Because these two and three component systems were art-recognized equivalents at the time the invention was made, it would have been obvious to one of ordinary skill in the art to use the three component system resist in Aoso's invention with a reasonable expectation of obtaining the same result. Therefore, Aoso in view of Nitta et al would render obvious present invention of claim 8.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoso et al (JP 2002-255930 and DERWENT English abstract for the Japanese document) in view of Watanabe et al (6,818,148 B1).

English abstract of Aoso et al does not disclose the present surfactant of claim 11. Watanabe teaches the use of a fluorochemical surfactant in a resist composition in order to provide a resist coating having a uniform thickness, free of defects, and good storage stability (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art to add the fluorochemical surfactant in Aoso's resist composition in order to provide a resist coating having a uniform thickness, free of defects, and good storage stability as taught by Watanabe. Thus, Aoso in view of Watanabe would render obvious present invention of claim 11.

Allowable Subject Matter

9. Claims 3, 6, 9, and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Aoso does not teach or suggest the present resin of claim 3 or claim 6. Nor does the reference teach or suggest present negative photosensitive composition of claim 9. Aoso or Sanz does not teach or suggest present R_1 of claims 16-18 being an unsubstituted alkyl group.

Response to Arguments

10. Applicants argue that one skilled in the art would not immediately envisage replacing the H atoms in the R_6 and R_7 positions with two alkyl groups in Aoso's

compound (I-27) and thus argue that the present invention would not be anticipated by Aoso. Applicants also aruge that Aoso does not disclose an examples of a specific compound wherein R_6 and R_7 are alkyl groups and that a genus does not always anticipate a species within that genus.

The Examiner disagrees. Not only Aoso gives the generic formula (I-b) but the reference also gives a specific compound (I-27) in which every variables of the formula (I-b) are defined. In the specific compound (I-27), R_6 and R_7 are being defined as H atoms, and Aoso is also teaching that those H atoms are interchangeable with alkyl groups. Based on this teaching (and based on the fact that there are only ten groups given for R_6 and R_7 (i.e., H atom, alkyl, haloalkyl, cycloalkyl, alkenyl, aryl, aryalkyl, acyl, akoxycarbonyl or $-S-R_5$), it is still the Examiner's position that one skilled in the art would immediately envisage Aoso's compound (I-27) in which those two H atoms are replaced with two alkyl groups. It is the Examiner's position that in view of the compound (I-27), those variables in Aoso's generic formula (I-b) are sufficiently limited, and thus anticipation is found for the present claims. For this reason, Kodama's declaration was not found to be persuasive to overcome present rejection (besides the comparison was not made to the closest prior art).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. J. L.

S. Lee
May 28, 2005

Sin J. Lee

SIN LEE
PRIMARY EXAMINER